

CLAIMS

1. An exchange including a plurality of line interfaces to be connected with a line wire, and one or more extension interfaces to be connected with an extension, for connecting either the line wire and the extension or the extension and another extension, thereby to form a channel, comprising:

a time-division switch for connecting the line wire and the extension and for forming a channel between each other;

a memory for grouping at least two telephone numbers of the extension number assigned to the extension and the telephone number of the line wire, into at least one group and for registering the group; and

a controller for controlling the exchanging action either between the line wire and the extension or between the extensions,

wherein when said controller receives a conference opening demand for the conference communications via a first extension and a group number, said controller:

performs a conference calling termination by acquiring the number of other extensions belonging to the same group as that of said first extension having demanded the conference communications, from said

memory; and

controls said time-division switch so as to establish unidirectional communications from said first extension to the other extensions responding to the conference calling termination.

2. The exchange according to Claim 1,

wherein said controller controls, in said unidirectional communications when it receives an additional participation demand together with another new extension number via said first extension, a conference calling termination on the demanded extension number.

3. The exchange according to Claim 1,

wherein said controller controls, in said unidirectional communications when it receives an excluding demand and one extension number of the other extensions via said first extension, said time-division switch so as to cut the communication with the extension number demanded.

4. The exchange according to Claim 1,

wherein said controller performs the conference calling termination and starts a time measurement, and

stops, when a predetermined time elapses before the other extension responds, the conference calling termination at the unresponding other extension.

5. The exchange according to Claim 1,
wherein said controller transmits, when it controlled said unidirectional communications, a signal for the unidirectional communication display to said first extension and the other extension.

6. The exchange according to Claim 1,
wherein the conference calling can terminate not only at the other extension for the conference calling termination but also at the extension.

7. An exchange including a plurality of line interfaces to be connected with a line wire, and one or more extension interfaces to be connected with an extension, for connecting either the line wire and the extension or the extension and another extension, thereby to form a channel, comprising:

a time-division switch, connecting the line wire and the extension and for forming a channel between each other;

a conference trunk for synthesizing voices;

a memory for grouping at least two telephone numbers of the extension number assigned to the extension and the telephone number of the line wire, into at least one group and for registering the group; and

a controller, controlling the exchanging action either between the line wire and the extension or between the extensions,

wherein when said controller receives a conference opening demand together with a group number communications via a first extension and the group number, said controller:

performs a conference calling termination by acquiring the number of other extensions belonging to the same group as that of said first extension having demanded the conference communications, from said memory; and

controls said time-division switch so as to establish unidirectional communications from said first extension to the other extensions responding to the conference calling termination, and

wherein said controller further controls, when it receives a demand for bidirectional communications from any extension for said unidirectional communications, said time-division switch so that said extension having demanded the bidirectional communications and the first

extension may make bidirectional communications.

8. The exchange according to Claim 7,

wherein, in case the bidirectional communication demand was made from the other extension, the control of said bidirectional communications is made after a response of approval was received from said first extension.

9. The exchange according to Claim 7,

wherein said controller controls said conference trunk in addition to said time-division switch to perform the bidirectional communications, and transmits the signal synthesized by said conference trunk, as a reception voice to the other extension not participating in the bidirectional communications, so that the other extension not participating in the bidirectional communications can be attended.

10. The exchange according to Claim 7,

wherein said controller controls, in said bidirectional communications when it receives an additional participation demand and another new extension number via said first extension, a conference calling termination on the demanded extension number.

11. The exchange according to Claim 7,

wherein said controller controls, in said bidirectional communications when it receives a selecting demand together with one extension number of the other extensions via said first extension, said time-division switch so that the demanded extension number may change from said bidirectional communications to said unidirectional communication.

12. The exchange according to Claim 7,

wherein said controller controls, in said unidirectional communications when it receives an excluding demand and one extension number of the other extensions via said first extension, said time-division switch so as to cut the communication with extension number demanded.

13. The exchange according to Claim 7 or 10,

wherein said controller performs the conference calling termination and starts a time measurement, and stops, when a predetermined time elapses before the other extension responds, the conference calling termination at the unresponding other extension.

14. The exchange according to Claim 7,

wherein said controller transmits, when it controlled said unidirectional communications, a signal for said unidirectional communication display to said first extension and the other extension.

15. The exchange according to Claim 7,

wherein said controller transmits, when it controlled said bidirectional communications, a signal for said bidirectional communication display to said first extension and the other extension.

16. The exchange according to Claim 7,

wherein the conference calling can terminate not only at the other extension for the conference calling termination but also at the line wire.

17. The exchange including a plurality of line interfaces to be connected with a line wire, and one or more extension interfaces to be connected with an extension, for connecting either the line wire and the extension or the extension and another extension, thereby to form a channel, comprising:

a time-division switch for connecting the line wire and the extension and for forming a channel between each other;

a conference trunk for synthesizing voices;

a memory for grouping at least two telephone numbers of the extension number assigned to the extension and the telephone number of the line wire, into at least one group and for registering the group; and

a controller for controlling the exchanging action either between the line wire and the extension or between the extensions,

wherein when said controller receives a conference opening demand together with a group number via a first extension, said controller:

performs a conference calling termination by acquiring the number of other extensions belonging to the same group as that of the first extension having demanded the conference communications, from said memory; and

controls said time-division switch so as to establish unidirectional communications from said first extension to the other extensions responding to the conference calling termination,

wherein said controller controls, when it receives a demand for bidirectional communications from any extension for the unidirectional communications, said time-division switch and said conference trunk so that the extension having demanded said bidirectional

communications and said first extension may make bidirectional communications, and

wherein in said bidirectional communications among three or more said of the first extension and the other extensions, said controller controls, when it selects the extension for a secret from the extensions of the bidirectional communications and receives a secret communication demand via said first extension, said time-division switch for the secret communications so that only the extension selected and said first extension.

18. The exchange according to Claim 17,

wherein said controller further includes a tone generator and controls said time-division switch and said tone generator for transmitting a standby holding sound from said tone generator to the other extension which has been controlled from said bidirectional communications to a control not to participate in said secret communications.

19. The exchange according to Claim 17,

wherein said controller: controls said conference trunk in addition to said time-division switch to perform the bidirectional communications; transmits the signal

synthesized by said conference trunk, as a reception voice between the other extensions controlled not to participate in said secret communications from said bidirectional communications; and

makes said bidirectional communications between the other extensions, which are controlled from said bidirectional communications to the control not to participate in said secret communications.

20. The exchange according to Claim 17,

wherein said controller controls, in said secret communications when it receives a secret ending demand via said first extension, said time-division switch and said conference trunk so that said bidirectional communications may be made again between the extensions having made said bidirectional communications.

21. A conference communication method for an exchange including a plurality of line interfaces to be connected with a line wire, and one or more extension interfaces to be connected with an extension, for connecting either the line wire and the extension or the extension and the extension, thereby to form a channel, wherein another exchange includes:

a time-division switch for connecting the line wire

and the extension and for forming a channel between each other;

a conference trunk for synthesizing voices;

a memory for grouping at least two telephone numbers of the extension number assigned to the extension and the telephone number of the line wire, into at least one group and for registering the group; and

a controller for controlling the exchanging action either between the line wire and the extension or between the extensions,

wherein the controller comprises: a conference opening demanding step of receiving a conference opening demand via a first extension and the group number; a conference calling termination step of performing a conference calling termination by acquiring the number of other extensions belonging to the same group as that of said first extension having demanded said conference communications, from the memory; and a unidirectional communication step of controlling said time-division switch so as to establish unidirectional communications from said first extension to the other extensions responding to said conference calling termination, and

wherein said controller further comprises: a bidirectional communication demanding step of receiving a demand for bidirectional communications from any

extension for said unidirectional communications; a bidirectional communication step of controlling the time-division switch and said conference trunk so that the extension having demanded said bidirectional communications and said first extension may make bidirectional communications; and an attending step of transmitting the signal synthesized by said conference trunk, as a reception voice to the other extension not participating in the bidirectional communications, so that the other extension not participating in said bidirectional communications can be attended.